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Two New Species of Microcoryphia (Insecta) from Korea

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韓國産 돌좀目 2新種에 關한 分類學的 硏究

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적 요

한국산 돌좀은 1943년 Silvestri에 의하여 *Pedetontus coreanus* 1종만이 보고된 바 있다. 본인들이 1989년 부터 2년간 남한의 4개 지역에서 돌좀류를 채집하여 조사한 결과 2속 2신종 1미기록종이 확인되었다. 이들은 돌좀과(Machilidae)의 *Pedetontus longus* n. sp.와 *Haslundichilis viridis* n.sp.이며 *Pedetontus unimaculatus*는 한국 미기록종으로써 그 모식산지는 일본이다. 따라서 한국산 돌좀목은 모두 2속 4종이 된다.

Key words: Microcoryphia, Insecta, Taxonomy, Korea.

INTRODUCTION

Microcoryphia and Zygentoma were originally united in the order Thysanura. However, fundamental differences in their structures have led to their separation as independent orders. The order Microcoryphia is generally accepted as the most primitive in the true insects or Ectognatha, and it has been traditionally grouped with still more primitive entognathous orders of Protura, Collembola and Diplura under the name subclass Apterygota.

Microcoryphia is in a sharp contrast to the orders of Pterygota (winged insects) with its primitive wingless character and by the entire or almost lack of any metamorphoses. Insects of this order are characterized

with their posteriorly tapered fish-like form, provided with very long, many-segmented antennae, cerci and median caudal filament. Their body is strongly convex dorsally, and covered with fine scales which give the insects a mottled black or brown, silvery or golden appearance. Each abdominal segment bears paired styli, which are interpreted as vestiges of locomotor appendages probably inherited from myriapod-like ancestors. Bristletails (common name of Microcoryphia) are quick runner and are capable of jumping for a short distance when disturbed.

There are found many common apomorphic features in basic plans of the eye, head, external reproductive organ and so on between the Microcoryphia and Pterygota, but the former shares with the more primitive antennates, *i.e.* Collembolla and Myriapoda, some plesiomorphic characters, such as the total cleavage in the early developmental stage (Machida *et al.*, 1990). Thus, the Microcoryphia may be of great interest for systematic and evolutionary studies of Hexapoda.

About 280 species of Microcoryphia are known all over the world, but only one species, *Pedetontus coreanus* Silvestri, 1943, from the Korean peninsula (Uchida, 1955). We suppose there would be more number of species of Microcoryphia in this country considering that fourteen species have been listed so far in Japan.

With the addition of the species from the present collection, the total number of species of microcoryphian order from Korea amounts to 4 species in 2 genera, including a species already on record and one of new record for the country, as follows:

Machilidae

Petrobiinae

Pedetontus coreanus Silvestri, 1943

Pedetontus longus n.sp.

Pedetontus unimaculatus Machida, 1980 (n. rec.)

Machilinae

Haslundichilis viridis n.sp.

The type specimens are preserved in the Insect Collection of the Department of Biology Education, Jeonbug National University, Jeonju 560-756, Korea.

MATERIALS AND METHODS

The present materials were collected with aspirators from stones, leaf litters, rotting timbers and barks from four localities in South Korea during 1989 and 1990.

They were reared at the laboratory at room temperature, feeding them on green algae. For taking picture they were anesthetized with ethylether and then preserved in alcohol. Afterward they were dissected and mounted on slides with canada balsam. Wygodzinsky (1948) pointed out that the hypodermal pigments fade after a preservation even for a short time in alcohol.

We followed taxonomical systems of Remington (1954) and Paclt (1972) for higher categories, and those of Wygodzinsky (1948) and Paclt (1970) for lower like genera and species.

RESULTS

Pedetontus longus n.sp 왕돌좀(신칭) (Fig. 1, Fig. 2A-K, Fig. 3A-K)

Approximate length of body 11-13mm. Ratio of antenna to body length 1.6 maximum observed. Median caudal filament approximately equal in length to antenna. Ratio of cercus to median caudal filament 0.4-0.45. General body color ivory. Reddish brown hypodermal pigments slightly on head, its appendages and legs; pigmentation pattern more or less variable in individuals. Scale pattern as shown in Fig. 1. Black spots prominent on both sides of terga II, VI and IX. Black and white scales scattered on lateral sides of the terga.

Shape and hypodermal pigmentation of head as shown in Fig. 2A. Frons scaled between bases of antenna. Numerous short setae on each outer side of lateral ocellus (Fig. 2B). Clypeolabrum with many hairs, not pigmented.

Oculus large, convex, green, slightly wide (width/length 1.05-1.15), its line of contact/length 0.65-0.7. Lateral ocellus reddish brown, dumbbell-shaped, transverse, situated anteriorly to margin of oculus, less wide than oculus (ocellus/oculus 0.75-0.86) (Fig. 2A).

Scapus and pedicellus densely scaled, no scale on flagellum. Scapus about twice as long as wide, pedicellus as long as wide (Fig. 2C). Flagellum divided into 52 articles maximum observed. Proximal articles (up to 10-11th) of flagellum not subdivided, next articles subdivided into 2-10 subarticles, terminal one into 27 maximum observed (usually 20). Pigmentation pattern of antenna as shown in Fig. 2C, D. Articles of distal half of flagellum uniformly brownish, junction between articles pale.

Mandible 4-toothed (Fig. 2F), pigmented as shown in Fig. 2E.

Maxillary palpus long, that of male stouter than that of female, ratio of segment VII to VI 0.75-0.8, apex more pointed in female than in male. Maxillary palpus of male with chaetotaxy and hypodermal pigmentation as shown in Fig. 2H. Segment V of maxillary palpus long, its anterior portion rounded, posterior portion slender. Maxillary palpus with numerous setae of moderate size; generally those in segments VI-VII more than in segments I-V in number. Maxillary palpus of male provided with many ciliate hairs on undersurface of segments II-VII, those of segments V-VII shorter, those of segments II-IV longer, and less in number on segments IV-VII. Short suberect setae on each segment of maxillary palpus, not a few on segments V-VII in both sexes, but in female less than in male in number. Numerous short setae on maxilla and segment I of maxillary palpus (Fig. 2G). Spines on uppersurface of segments VI-VII and anterior portion of

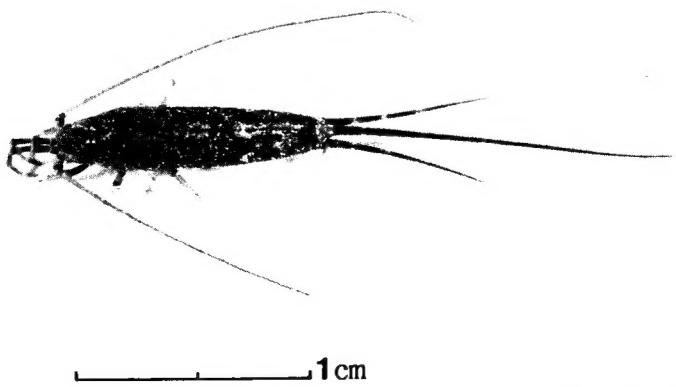

Fig. 1. *Pedetontus longus* n.sp. Photograph showing scale pattern, dorsal view.

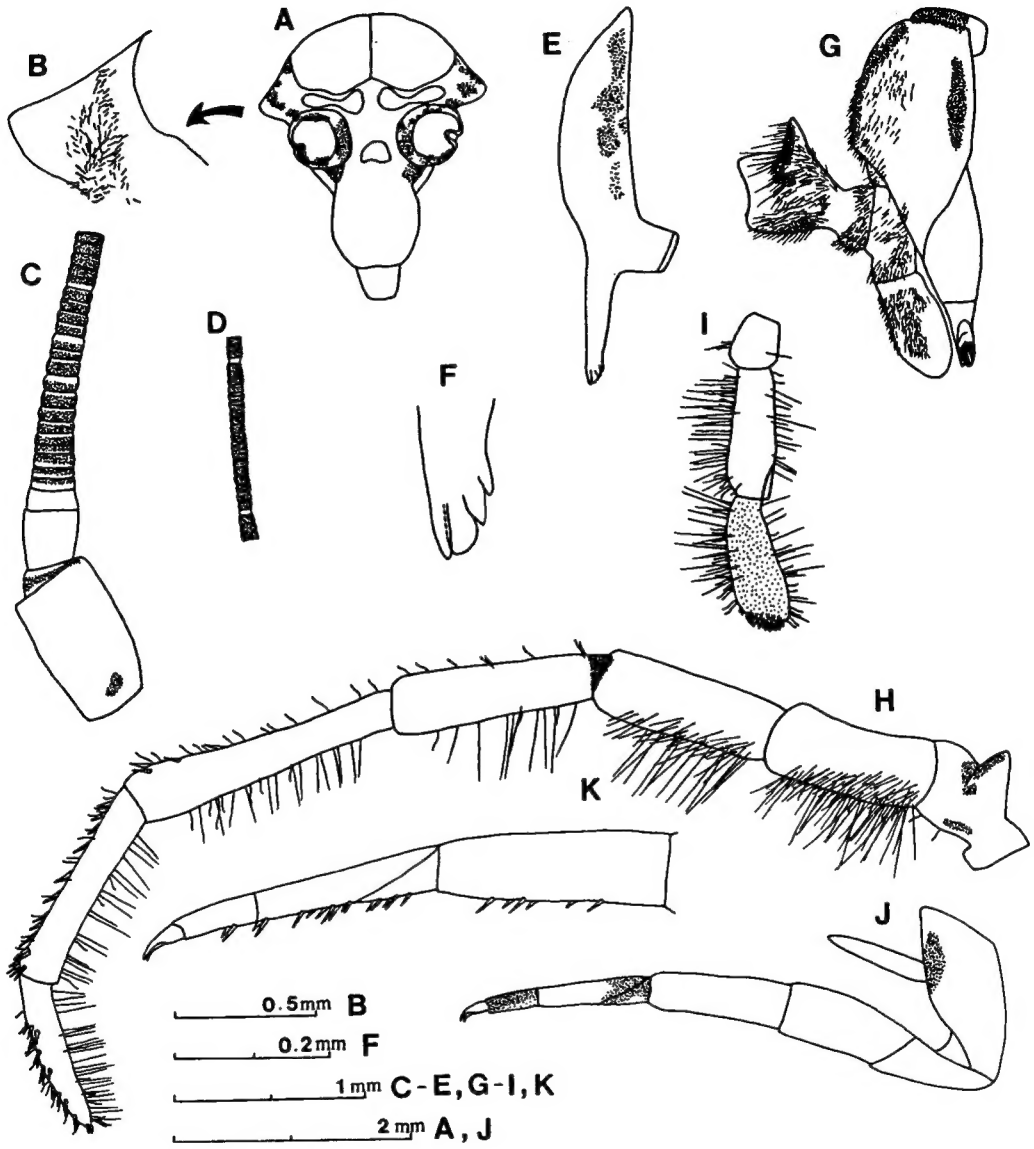

Fig. 2. *Pedetontus longus* n.sp.

A. Head, frontal view with hypodermal pigmentation; B. Outer side of lateral ocellus with numerous short setae; C. Antenna with pigmentation on basal portion; D. Median article (26th) of flagellum; E. Mandible with hypodermal pigmentation, anterior view; F. Apical portion of mandible; G. Maxilla of female with chaetotaxy and hypodermal pigmentation; H. Maxillary palpus of male with chaetotaxy and hypodermal pigmentation; I. Labial palpus of male with chaetotaxy and pigmentation; J. Hindleg of female, anterior view with hypodermal pigmentation; K. Spines of female hindleg.

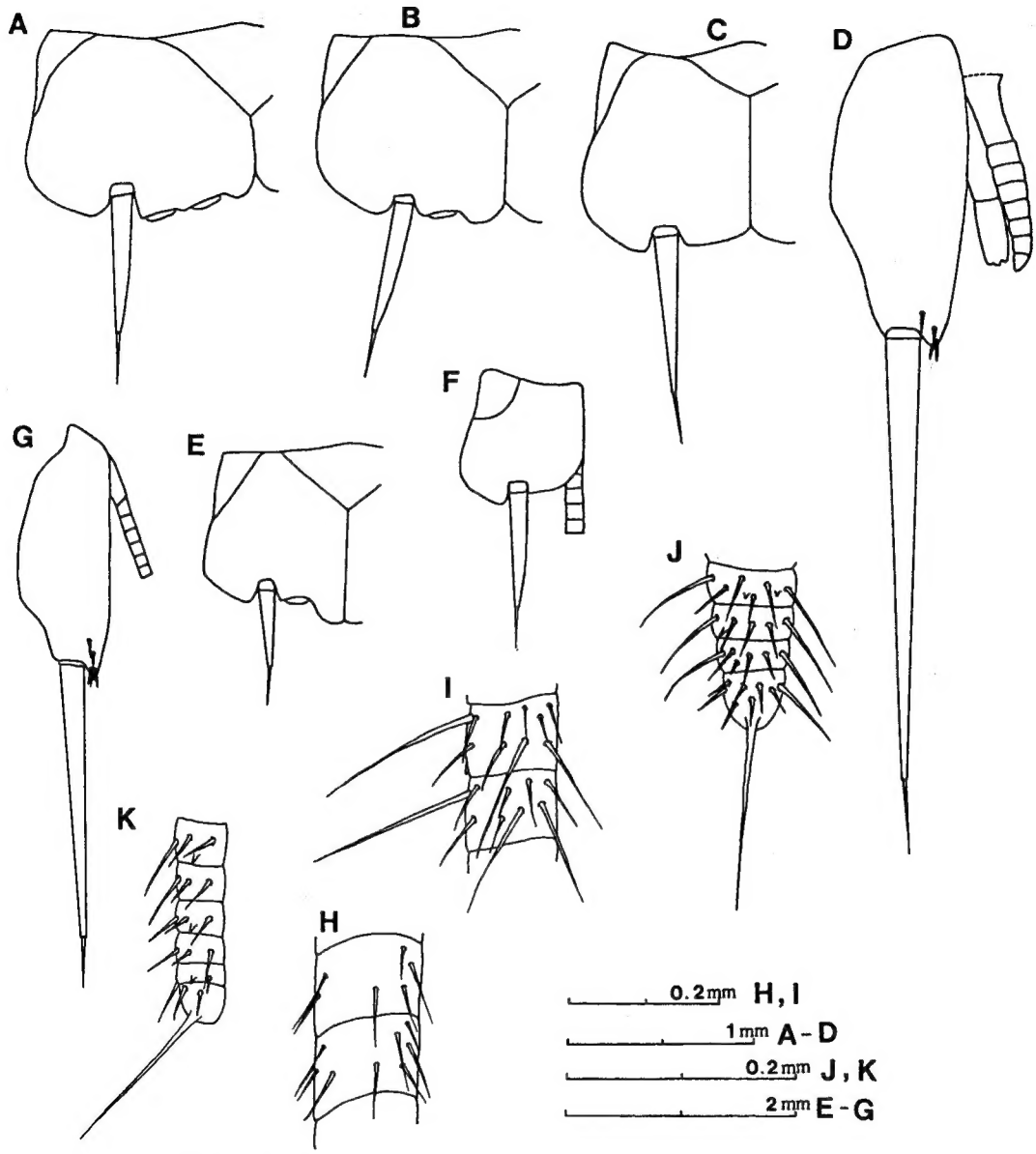

Fig. 3. *Pedetontus longus* n.sp.

A. Urosternum V of male; B. Urosternum VII of male; C. Urosternum VIII of male; D. Urosternum IX of male with penis and paramere; E. Urosternum VII of female; F. Urosternum VIII of female; G. Urosternum IX of female; H. Basal annuli (8,9 th) of anterior gonapophysis of female; I. Median annuli (39, 40th) of anterior gonapophysis of female; J. Apical annuli of anterior gonapophysis of female; K. Apical annuli of posterior gonapophysis of female.

segment V of maxillary palpus in both sexes, those of apex of segment VII of male small. Hypodermal pigments of maxillary palpus rare, only slightly on segment I and proximal portion of segment IV in both sexes. Pigmentation on maxilla faint, restricted in cardo and dorsoanterior margins of stipes as shown in Fig. 2G. Segments II-V of maxillary palpus scaled densely, segments VI and VII slightly sparse, and segment I rare.

Shape and pigmentation of labial palpus of male as shown in Fig. 2 I, palpus of male larger than that of female. Apical portion of labial palpus with numerous sensory cones, less in number in female than in male. Numerous setae of moderate size on segment III, less in number on segment II, and rare on segment I. Long suberect setae present in last and penultimate segments of labial palpus in male, but absent in female. Labial palpus also with short suberect setae, rare on segment I in both sexes. All segments of labial palpus sparsely scaled and last segment slightly pigmented.

Hypodermal pigmentation and spines of leg as shown in Fig. 2J, K; legs relatively long. Ratio of width to length of tarsus III 0.3-0.35 in male, 0.35-0.4 in female; in case of hindlegs ratio small in both sexes. Ratio of coxal styli in length to coxa about 0.7. Chaetotaxy fundamentally the same in each leg and in both sexes. Numerous setae on tarsus and tibia, slightly less in number on femur, trochanter and coxae. Number of spines on undersurface of legs as shown in table 1. Tarsi I, III and proximal portion of tarsus II dark, coxae and tarsus I pigmented in both sexes. All segments of legs and styli scaled.

Abdominal segments I, VI and VII each with 1 pair of ventral sacs, II-V with 2 pairs in both sexes. Shape of urosterna V, VII, VIII and IX as shown in Fig. 3A-G. Posterior angle of 5th median plate approximately 80 degrees in male, 80-85 degrees in female. Inner posterior lobes of coxite VII of female projected. Inner distal half of coxite IX with 3-7 (usually 4-6) spines, 11 spines maximum observed. Ratio of stylus to coxite: segments V and VII 0.6-0.7 in both sexes; segment VIII 0.7-0.8 in male, 0.75-0.9 in female; segment IX more than 1 in both sexes (usually 1.1-1.4 in male, 1.0-1.2 in female).

Ovipositor of primary type, surpassing apex of stylus IX by 1.2-1.5 of the stylus IX length. Anterior and posterior gonapophyses with 56-83 (usually 73-77) annuli. Chaetotaxy of gonapophyses as illustrated in Fig. 3H-K. Basal half of posterior gonapophysis glabrous, while all annuli of anterior gonapophysis setose. Sensory cones usually 1-2/annulus on approximately 5 apicalmost annuli of both gonapophyses, rare toward basal annuli.

Table 1. Number of spines on undersurface of legs of *Pedetontus longus* n. sp.

( ) usual number of spines

	Foreleg		Midleg		Hindleg	
	♂	♀	♂	♀	♂	♀
Femur	0		0		0-1 (0)	0
Tibia	0*		2-8 (4-8)	4-8 (5-8)	6-14 (6-9)	5-12 (5-8)
Tarsus I	2-4 (3)	1-5 (3-4)	4-7 (5-6)	3-7	4-9 (6-8)	4-7 (5-7)
II	6-12 (8-10)	4-11 (7-9)	6-11 (8-11)	6-11 (8-9)	9-15 (10-13)	9-15 (9-12)
III	0-3 (1-2)	0-2 (1-2)	0-3 (1-3)	1-3 (1-2)	0-3 (1-3)	0-3 (1-2)

*A male with 1 spine and a female with 3 spines on tibia of foreleg were found.

Shape of penis and paramere as shown in Fig. 3D. Ratio in length of penis to coxite IX 0.75-0.85. Ratio of apical part of penis to entire length 0.3-0.35. Apical part of penis with numerous short setae; less in number on basal part. Paramere with I+7 or 8 annuli. Paramere surpassing penis slightly (ratio of penis to paramere 0.9-0.97). Inner portion of annulated part of paramere provided with numerous spine-like short setae.

Type-series. Holotype: ♂, Baemsa-gol, Mt. Jiri-san, Banseon-ri, Sannae-myeon, Namweon-gun, Jeonrabug-do Province, 25, VII, 1990. Paratypes: 6♂♂, 5♀♀, same data as the holotype; 4♂♂, 6♀♀, Temple Baegyang-sa, Bugha-myeon, Jangseong-gun, Jeonranam-do Province, 20, VIII, 1989.

Remarks. The genus *Pedetontus* Silvestri is one of the commonest machilidan groups in Asia. Six *Pedetontus* species were described from Japan (Silvestri, 1943; Uchida, 1960; Machida, 1980), five species from America (Silvestri, 1911), four from Taiwan (Silvestri, 1943; Uchida, 1965), three from China (Silvestri, 1936), two from USSR (Silvestri, 1925; Kaplin, 1980), one from Viet-Nam (Mendes, 1981), and three from Korea including two in the present study.

Paclt (1972) subdivided the genus *Pedetontus* into 2 subgenera, *Pedetontus* and *Verhoeffilis*, from the number of ventral sacs on the 6th urosternum. *P. longus* n. sp. belongs to *Verhoeffilis*.

P. okajimae and *P. sauterii* belong to 'wide-eyed group' (Machida, 1980) and oculus of *P. unimaculatus* is 1 in width/length, but in the present species it is slightly wider than long. Numerous ciliate hairs, Wimperborsten (*cf.* Wygodzinsky, 1950) are on undersurface of male maxillary palpus, as in *P. nipponicus*, *P. okajimae*, *Lepismachilis notata* and *Haslundichilis viridis* n. sp.

P. longus is easily distinguishable from other *Pedetontus* species including *P. coreanus* in chaetotaxy of labial palpus, maxilla and its palpus. The number of subarticles (usually 20) of the terminal articles of flagellum in the new species is larger than that of *P. unimaculatus* (usually 13-18) (Machida, 1980). Also ovipositor of this species is longer than in *P. nipponicus* and *P. okajimae* (Machida, 1985b).

Pedetontus unimaculatus Machida, 1980 반디돌좀(신칭)

Pedetontus unimaculatus Machida, 1980 (pp. 220-225, figs. 1-30)

Pedetontus unimaculatus Machida, 1985a (pp. 247-248, figs. 1-4)

Remarks: Some specimens identical with *Pedetontus unimaculatus* Machida were obtained from Mt. Geumo-san. The scale pattern is similar to the specimens of original description (called "Shimoda type", Machida, 1980). But minor differences were found in some characters between individuals of our specimens and the original description as follows.

Oculus green, ratio of width/length 1.0-1.05, its line of contact/length 0.6-0.7. Lateral ocellus slightly less wide than oculus (ocellus/oculus 0.8-0.9). Proximal portion of pedicellus of antenna slightly pigmented.

Pigmentation of mandible and maxilla is heavier than in the "Yaku-shima type" (Machida, 1985a). The hypodermal pigmentation of the mandible considerably extensive in comparison with one originally described. The maxillary pigmentation is also wider in extension. Undersurface with slender major suberect setae not a few on segments V-VII, less in number on segments II-IV in male, but absent in female. Minor suberect setae on uppersurface and undersurface of each segment of maxillary palpus, not a few on segments V-VII in both sexes, but in female less than in male in number. Labium pigmented in general, last segment of labial paplus especially pigmented on apical portion in both sexes.

Ratio of width to length of tarsus III 0.3-0.35 in both sexes; in case of hind legs ratio small. Ratio of

coxal styli in length of coxa about 0.7. Some difference were found in number of spines on undersurface of legs between Korean specimens and one originally described as shown in table 2. Number of spines of Korean specimens is more or less larger than in the original description in general. The hypodermal pigmentation of legs is slightly different from original description; upper side of proximal half of coxae pigmented in all legs of both sexes.

Posterior angle of 5th median plate approximately 85 degrees in male, 90 degrees in female. Ovipositor slightly surpassing apex of stylus IX. Sensory cones 1-4 (usually 1-3)/annulus approximately on 2 apicalmost annuli of both gonapophyses, 1 cone/annulus usually on 3-5 apical annuali, and rare toward basal annuli.

Table 2. Number of spines on undersurface of legs of Korean *Pedetontus unimaculatus* Machida.

( ) usual number of spines

	Foreleg		Midleg		Hindleg	
	♂	♀	♂	♀	♂	♀
Tibia	0		1-4 (2-3)	0-5 (2-4)	3-5	4-5
Tarsus I	0-1 (1)	1-2 (1)	3-4	2-5 (3-4)	3-5	3-6 (4-5)
II	6-9	4-9 (6-9)	6-9	7-9	8-12	7-11 (7-9)
III	0-2 (1-2)	1-4 (1-2)	2-4	2-5 (3-4)	2-5 (3-4)	2-4

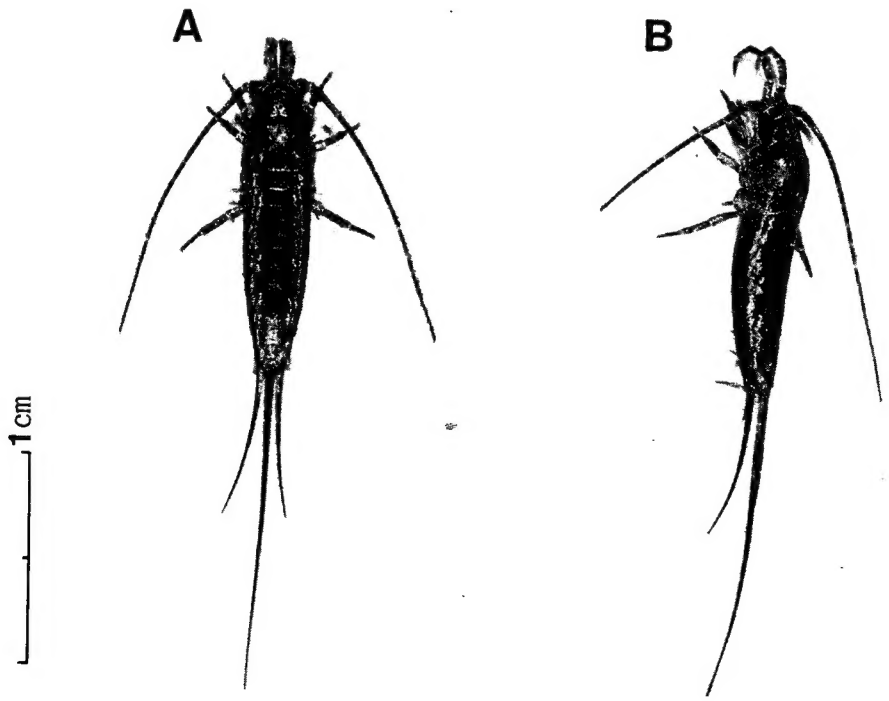

Fig. 4. *Haslundichilis viridis* n. sp.

A. Photograph showing scale pattern, dorsal view; B. Ditto, dorsolateral view.

Ratio in length of penis to coxite IX 0.75-0.8. Ratio of apical part of penis to entire length 0.35-0.4. Paramere surpassing penis slightly (ratio of penis to paramere 0.95-1.0).

Materials examined. 10 ♂♂, 10 ♀♀, Temple Hyang-il-am, Mt. Geumo-san, Yeocheon-gun, Jeonranam-do Province, 1, VIII, 1990.

Distribution. Japan, Korea (new record).

Haslundichilis virdis n.sp. 남작돌좀(신칭) (Fig. 4A-B, Fig. 5A-M, Fig. 6A-K)

Approximate length of body 11-12mm. Ratio of antenna to body length 1.2 maximum observed. Median caudal filament approximately equal in length to antenna. Ratio of cercus to median caudal filament 0.45-0.5. General body color ivory. Reddish brown hypodermal pigments slightly on head and its appendages; pigmentation pattern more or less variable in individuals. Scale pattern as shown in Fig. 4A, B. White scales in regular pattern on antenna. Both sides of tergum covered with whitish scales to form a pair of broad linear bands, a thin line of black scales on center line of each band.

Shape and hypodermal pigmentation of head as shown in Fig. 5A. Frons scaled, especially dense just before oculi. Frons pigmented in a reverse triangular form on central portion. Clypeolabrum with many hairs, labrum slightly pigmented.

Oculus relatively large, flattened, wider than deep (width/length 1.25-1.55), its line of contact/length 0.67-0.82. General color of oculus reddish brown, the median portion or also lower portion pale green (in living insects). Lateral ocellus not elongate, sole, elliptical, reddish brown, situated sublaterally before eyes, relatively less wide than oculus (ocellus/oculus 0.45-0.5) (Fig. 5A).

Antenna thick, densely scaled. Scapus about twice as long as wide, pedicellus as long as wide (Fig. 5B). Flagellum divided into 41 articles maximum observed. Proximal articles (up to 10-11th) of flagellum not subdivided, median articles subdivided into 2-10 subarticles, terminal one into 15 maximum observed. Pigmentation pattern of antenna as shown in Fig. 5B-D. Articles of distal half of flagellum uniformly brownish, junction between articles pale.

Mandible 4-toothed (Fig. 5F), pigmented as shown in Fig. 5E.

Maxillary palpus relatively stout and long, that of male stouter than that of female, ratio of segement VII to VI 0.8-0.9 (about 6/7), apex more pointed in female than in male. Maxillary palpus of male with chaetotaxy as shown in Fig. 5H. Maxillary palpus with numerous setae of moderate size; generally those in segments V-VII more than in segments I-IV in number. Maxillary palpus of male provided with many ciliate hairs on undersurface of segments II-VII, those of segments V-VII shorter, those of segments II-IV longer, less in number on segments V-VII. Short suberect setae on each segment of maxillary palpus, numerous on segments V-VII in male, but in female less than in male in number. Spines on uppersurface of segments VI-VII and anterior portion of segment V of maxillary palpus in both sexes, those of apex of segment VII of male small. Maxillary palpus not pigmented. Maxilla pigmented as shown in Fig. 5G, only pigmentation on apical portion of galea conspicuous. Segments V-VI of maxillary palpus scaled densely, segments II-IV and VII slightly sparse, and segment I rare.

Shape and pigmentation of labial palpus in male and female as shown in Fig. 5I, J. Labial palpus large, axe-shaped, palpus of male larger than that of female. Apical portion of labial palpus with numerous sensory cones, less in number in female than in male, especially numerous in ventral surface of male. Numerous setae of moderate size on segment III, less in number on segment II, and rare on segment I in both sexes.

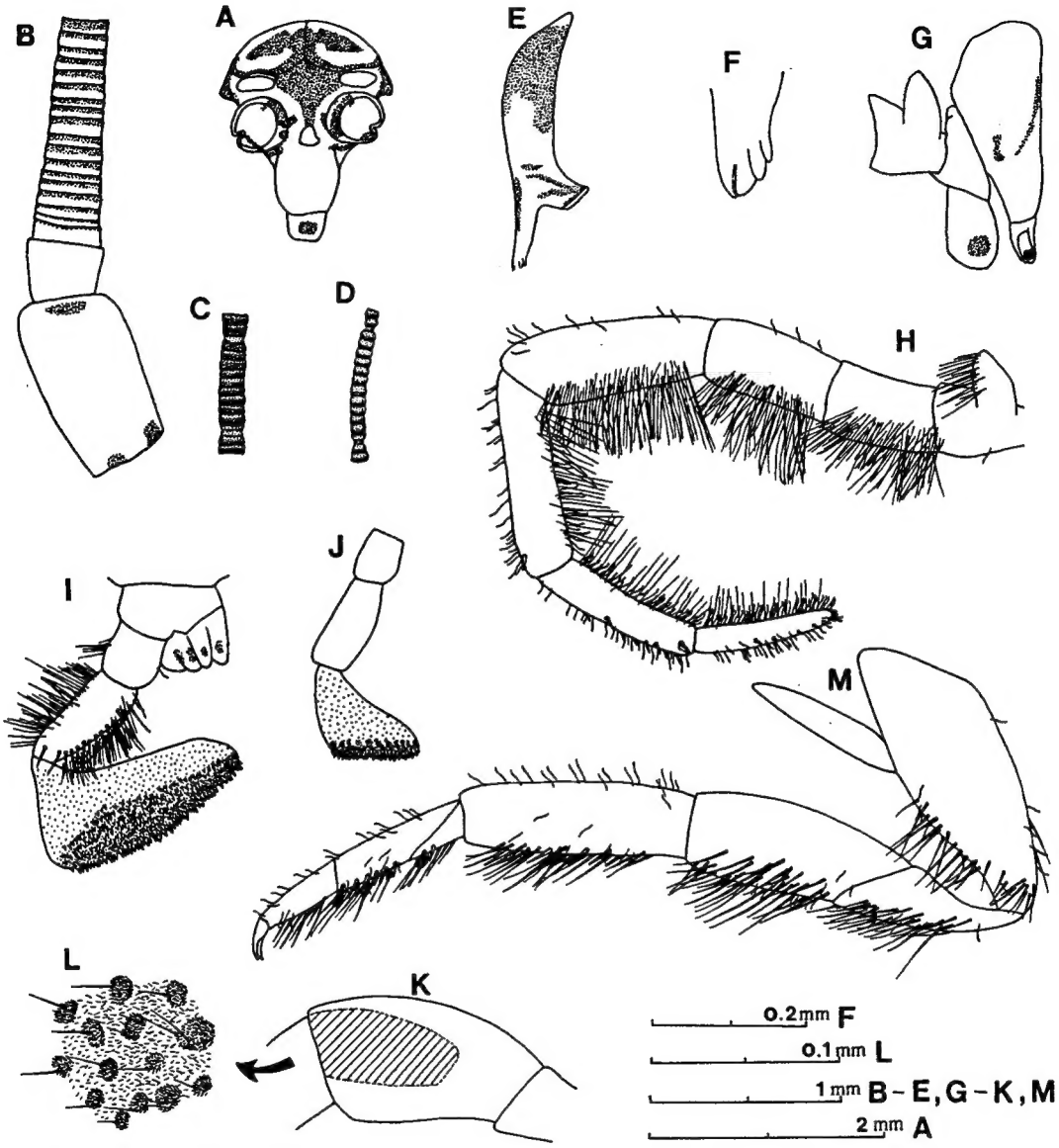

Fig. 5. *Haslundichilis viridis* n. sp.

A. Head, frontal view with hypodermal pigmentation (oculi, pale green area dotted); B. Antenna with pigmentation on basal portion; C. Median article (27th) of flagellum; D. Terminal article (35th) of flagellum; E. Mandible with hypodermal pigmentation, anterior view; F. Apical portion of mandible; G. Maxilla of male with hypodermal pigmentation; H. Maxillary palpus of male with chaetotaxy; I. Labial palpus of male with chaetotaxy and hypodermal pigmentation; J. Labial palpus of female with hypodermal pigmentation and apical sensory cones; K. Femur of male foreleg (sensory field lined); L. Sensory field of male femur I; M. Hindleg of male, anterior view with chaetotaxy.

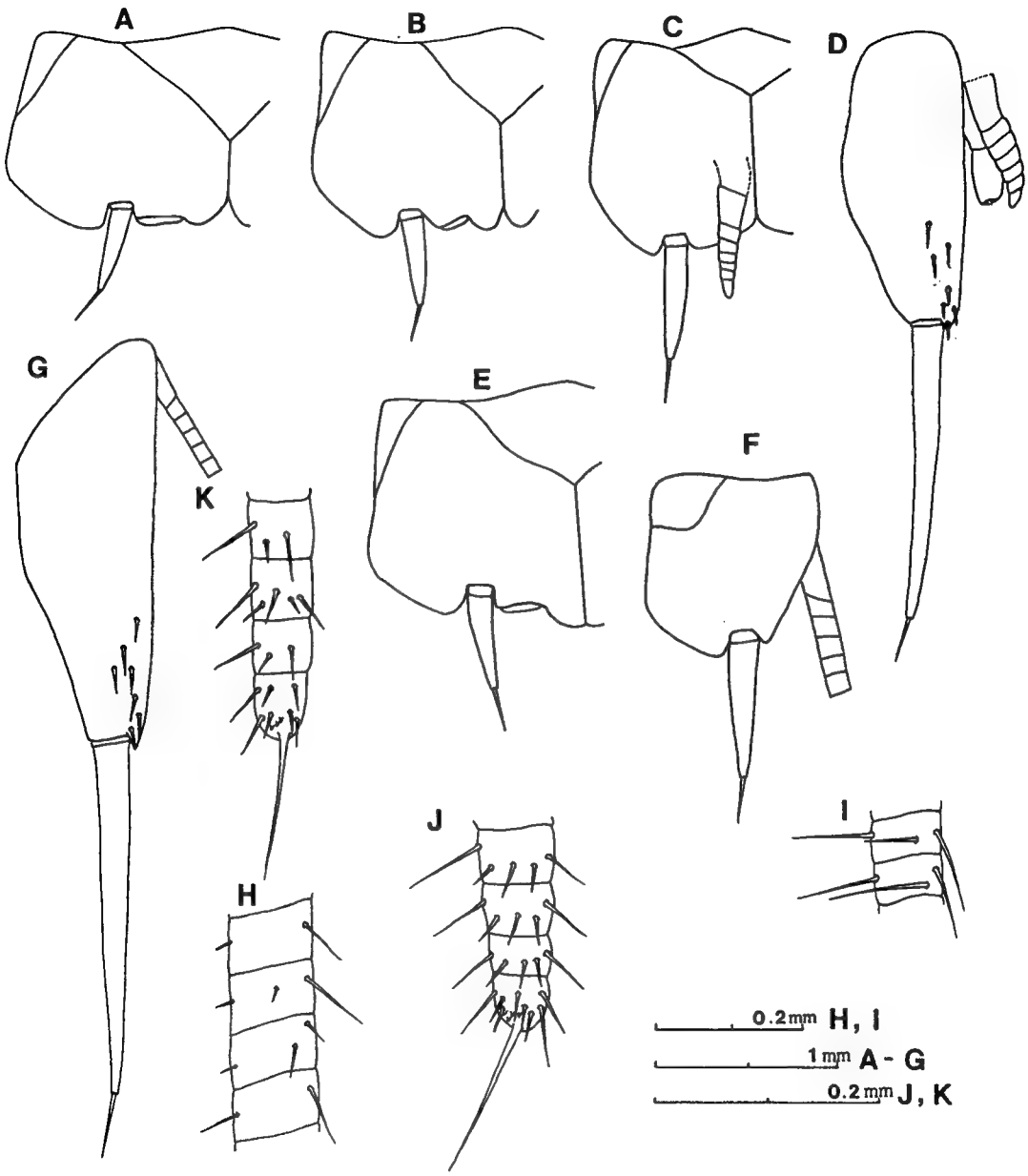

Fig. 6. *Haslundichilis viridis* n. sp.

A. Urosternum V of male; B. Urosternum VII of male; C. Urosternum VIII of male; D. Urosternum IX of male with penis and paramere; E. Urosternum VII of female; F. Urosternum VIII of female; G. Urosternum IX of female; H. Basal annuli (21-24th) of anterior gonapophysis of female; I. Median annuli (36, 37th) of anterior gonapophysis of female; J. Apical annuli of anterior gonapophysis of female; K. Apical annuli of posterior gonapophysis of female.

Not a few strong setae arranged along margin on inner surface of segment II in male, but absent in female. Many long suberect setae present on segment II in male, shorter and less in number on inner side than on outer side, rare on segment I, but absent in female. Labial palpus also with short suberect setae, rare on segment I in both sexes. All segments of labial palpus sparsely scaled. Glossae and paraglossae slightly pigmented. Last segment pigmented, especially its apical portion in both sexes, darker in female than in male.

Shape and chaetotaxy of leg as shown in Fig. 5M, legs stout, not so long. Ratio of width to length of tarsus III 0.35-0.4 in both sexes; in case of hindlegs ratio small. Ratio of coxal styli in length to coxa 0.55-0.6. Chaetotaxy fundamentally the same in each leg and in both sexes, with the exception of anterior surface of femur of male foreleg. Numerous setae of moderate size on tarsus and tibia, less in number on femur and trochanter, and rare on coxae. Number of spines on undersurface of legs as shown in table 3. Numerous long slender setae on undersurface of tarsus to trochanter, slightly less in number on tibia and tarsus, slightly shorter and less in number in female than in male. Short suberect setae on legs, especially dense on tarsi II, III and tibia. Sensory field on apical anterior surface of femur of foreleg (Fig. 5K, L), numerous somewhat long setae on posterior surface under the sensory field in male. Legs scarcely pigmented. All segments of legs and styli scaled.

Abdominal segments I-VII each with 1 pair of ventral sacs in both sexes. Shape of urosterna V, VII, VIII and IX as shown in Fig. 6A-G. Posterior angle of 5th median plate large; approximately 90-95 degrees in male, 95-105 degrees in female. Inner posterior lobes of coxite VII of female projected. Inner distal half of coxite IX with 3-8 (usually 5-6) spines. Ratio of stylus of coxite: segment V 0.35-0.45 in both sexes; segment VII 0.4-0.5 in both sexes: segment VIII 0.55-0.6 in male, 0.7-0.8 in female; segment IX 0.85-1.0 in male, 0.75-0.9 in female.

Ovipositor of primary type, slightly surpassing or at the same level as apex of stylus IX. Anterior and posterior gonapophyses with 52-69 (usually 55-62) annuli. Chaetotaxy of gonapophyses as illustrated in Fig. 6H-K. Basal half of posterior gonapophysis glabrous, while all annuli of anterior gonapophysis setose. Sensory cones 3-4 only on apicalmost annulus in both gonapophyses.

Shape of penis and paramere as shown in Fig. 6D. Ratio in length of penis to coxite IX 0.55-0.6. Ratio of apical part of penis to entire length 0.25-0.3. Apex of penis slightly pigmented. Apical part of penis with numerous short setae; less in number on basal part. Parameres 2 paired; anterior paramere on coxite VIII with I+6 or 7 annuli and posterior paramere on coxite IX with I+5 or 6 annuli. Ratio of anterior paramere/posterior paramere 0.65-0.7; posterior paramere surpassing penis slightly (ratio of penis to posterior

Table 3. Number of spines on undersurface of legs of *Haslundichilis viridis* n. sp.

( ) usual number of spines

	Foreleg		Midleg		Hindleg	
	♂	♀	♂	♀	♂	♀
Tibia	0		0-5	0	2-8 (2-6)	0-1 (0)
Tarsus I	0-2 (0)	0	1-4 (2-4)	0-3 (0-2)	1-7 (2-5)	0-5 (0-2)
II	3-7 (4-6)	0-7 (3-6)	6-12 (6-8)	2-9 (5-8)	7-11 (7-10)	2-9 (5-9)
III	0-2 (1-2)	0-2 (1)	1-2 (2)	1-2 (1)	0-3 (1-2)	0-2 (1)

paramere 0.87-0.97). Inner portion of annulated part of paramere provided with numerous spine-like short setae.

Type-series. Holotype: ♂, Is. Hong-do, Heugsan-myeon, Shinan-gun, Jeonranam-do Province, 28, IX, 1989. Paratypes: 8♂♂, 5♀♀, 28, IX, 1989; 3♂♂, 5♀♀, 29, VII, 1990. All the paratypes were collected at the same locality as the holotype.

Remarks. One species of *Haslundichilis* Wygodzinsky was described from China (as *Forbicina* Silvestri, 1934), two species from USSR (Paclt, 1960; Mendes, 1982) and also two from Afghanistan (Wygodzinsky, 1950, 1962), one from Himalayas (Wygodzinsky, 1952) and Palestine (Wygodzinsky, 1942) for each, and one from Korea in the present study.

Males of the present species possess numerous ciliate hairs on undersurface of maxillary palpus, as in *P. longus* n.sp., *P. nipponicus, P. okajimae, Lepismachilis notata* and so on; Wimperborsten in this species is longer and more in number than in the others. Numerous setulae were densely distributed on anterior surface of male tibia I (sensory field) in *Pedetontus okajimae* (Machida, 1985b) and anterior surface of male femur I in *Haslundichilis* species.

The members of this genus usually have compound eyes of reddish brown in color, but exceptionally the present species has pale green portion in them. Also this species can be easily distinguished from the other Korean microcoryphians by the scale pattern, labial palpus and chaetotaxy of legs in male.

DISCUSSION

As mentioned above, there has been only one species, *P. coreanus* Silvestri, 1943, recorded from Korea so far. The original description, however, is too vague to be used for identification, and so the redescription should be made for practical use. In the nearby countries microcoryphian forms were listed with 14 species in 3 genera from Japan, 4 species in a genus from Taiwan, and 8 species in 5 genera from Mainland China. Overall, we would say it is one of most poorly known group of insects in Asia, and we consider that from Korea there should be more number of Microcoryphia to be described.

Quite more number of new taxa will have to be uncovered from the country to make it possible to analyse the microcoryphian fauna of Korea from biogeographical point of view.

ABSTRACT

This study deals with three microcoryphian species in two genera, including two new species *Pedetontus longus* n.sp. and *Haslundichilis viridis* n.sp., and one species of new record for South Korea *Pedetontus unimaculatus* Machida, 1980. Four species in two genera are accordingly listed for the microcoryphian fauna of Korea.

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